TALLGRASS WILDLIFE

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How to Get Started

Materials contained in this kit are geared toward grades 3-4 and correlated to Kansas State Education Standards for those levels.

References to items from trunk will be in **bold print and underlined**. Vocabulary words are *italicized*. Graphics with a Figure Number referenced will have accompanying transparencies and digital versions on the CD. Watch for the following symbols to help guide you through the booklet:

Indicates a class discussion point and potential writing activity.

Indicates further resources on the Web for extension learning.

Math Counts! Exercise for mental or written arithmetic.

Vocabulary Counts! New vocabulary that may need reinforcement.

Community Counts! Opportunity for verbal interaction with community members.

Please help us continue to share these treasures with other students by treating the trunk contents with respect.

Good luck and enjoy!

All questions, comments, and suggestions are welcome and should be forwarded to:

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National Preserve
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(620)273-8494

Curriculum Standards (Kansas)

The activities and materials in this trunk have been compiled to meet curriculum standards for the State of Kansas Department of Education.

Subjects	Benchmarks	Lesson A	Lesson B	Lesson C	Lesson D	Lesson E	Lesson F	Lesson G	Lesson H	Lesson I
History	1	X								
Physical Science	1								X	
	3			X	X	X	X	X	X	X
Life Science	1		X	X	X	X	X	X	X	X
	2			X	X	X	X	X		X
Earth and Space	1								X	
Environmental	2		X					X	X	X

Curriculum Standards (National)

National Science Education Standards	Standard C: The student understands the characteristics of organisms, the life cycles of organisms, and organisms and their environment. Standard F (Science in Personal and Social Perspectives): Characteristics and changes in populations, types of resources, changes in environment, science and technology in local challenges. Standard G (History and Nature of Science): Science as a human endeavor.
National Council of Teachers of English	Standard 1: Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Standard 3: Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts.
National Center for History in the Schools	Standard 3E: The student understands the ideas that were significant in the development of the state and that helped to forge its unique identity. Standard 8B: The student understands changes in transportation and their effects.

PRE-TRUNK ACTIVITIES

1. Have the students talk about the wild animals they've seen. Where did they see them? What were the animals doing?

2. Talk about where the animals live. Some live underground, some on the surface, some in trees, some in rivers and ponds. What physical attributes do these animals have that allow them to live where they do?

3. "**What Am I**" game. Twenty-three signs with animal names / pictures are hung on students' backs without them knowing what the animal is. Then they circulate around the room asking each other only "yes / no" questions to try and gather clues as to their own identity.

   Animal signs include:

deer	coyote
bobcat	fox
squirrel	skunk
opossum	bison
rat snake	collared lizard
badger	horned lizard
grasshopper	butterfly
box turtle	beaver
prairie chicken	meadowlark
red-tailed hawk	raccoon
rattlesnake	jackrabbit
wood rat	

Lesson A: Historic Wildlife

Objectives:

- Students will learn which animals lived here before settlement.

- Students will learn why some of those animals no longer live here.

Materials:

___ transparencies of bison, pronghorn antelope, and mountain lion.
___ Pocket Guide to Kansas Threatened and Endangered Species

Curriculum Standards:

History
B1- the student understands major developments in history.

learn more about Zebulon Pike at www.nps.gov and link to Westward Expansion

Kansas used to be open prairie, from the Missouri River west. After the Louisiana Purchase added the Great Plains to America's land holdings, the explorer Zebulon Pike traveled through the area just ten miles south of the modern preserve, in 1806. In his journal he wrote,

" *in one view below me saw buffalo, elk, deer, pronghorn antelope, and panthers (mountain lions).*"

When settlers started to move in during the middle of the 19th century, they brought many changes to the prairie landscape and its animal communities. Settlers plowed the grassland, planted crops, and brought cattle to graze on the native prairie. The native grazing animals like the bison, elk and pronghorn antelope were not only losing their grazing land, but were also being hunted heavily, and their populations were quickly reduced.

plowing the fields with horsepower

As the prairie was plowed and trees were cut down, there was a great loss of the habitat upon which these animals depended. Hunting was another reason the larger animals disappeared from Kansas. Large numbers of game animals were harvested without any concern for conservation.

harvesting the grain

bison herd on the plains

Fig.A-1
bison at Tallgrass Prairie National Preserve

extinct

To learn more about Yellowstone National Park, go to www.nps.gov/yell

The American bison is the largest land animal in North America. It can stand 6 feet high at the shoulder, be 10-12 feet long, and weigh 1000 to 2000 pounds. The Native Americans depended heavily on the bison for many products used in every aspect of their lives.

Bison once numbered in the tens of millions throughout the plains of the midwest. By the late 1870s, however, they were almost *extinct*. By the 1880s, there were only about 1000 bison left on the plains. In 1894, to preserve what was left of the once immense bison herds, they were placed under the protection of Yellowstone National Park. Eventually, more and more bison would be protected, and today there are an estimated one million bison in the United States.

ACTIVITY #1

The bison was a very important animal to the American Indians. The loss of the large bison herds hurt the Indians in many ways.

As a class, have the students list as many uses for parts of the bison as they can. Refer to the Nature Conservancy's "**American Bison**" booklet as a guide.

Elk were also abundant before the American settlers moved onto the prairie. Even in the mid-1800s, elk still numbered in the thousands. Hunting and the loss of habitat played key roles in their removal from the plains. The only remaining evidence of their once wild presence is in the form of written records. Today, captive herds can be found in preserves throughout Kansas.

elk

Pronghorn antelope also occurred in large numbers. In historic times, they were nearly as numerous as the bison, but by the 1930s they were gone. Reintroduction programs in the 1960s have resulted in a thousand or more antelope in Kansas today. Although a few can be seen on the eastern edge of the Flint Hills, most are in the western portion of Kansas. One of the swiftest animals on the plains, it can reach top speeds of 55 mph.

Fig. A-2
pronghorn antelope

The bison, elk, and antelope were the largest grazing animals on the plains at the time the settlers arrived. What animals would have been big enough, strong enough, fast enough, or smart enough to prey on them?

grizzly bear

Learn more about the Lewis and Clark expedition at www.nps.gov

One such predator was the grizzly bear. It also roamed the prairie at that time and was mostly found along the rivers and creeks that drained the prairie. Numerous accounts exist of encounters between grizzlies and Native Americans. Early explorers to the North American plains often wrote of meeting the grizzly bear. Lewis and Clarks' journals spoke of many chance encounters as they traveled up the Missouri River. Although grizzlies could take down a mature bison, they would more likely take calves or sick adults. They would also feed on the *carcasses* of the bison that did not survive the winter.

carcasses

The gray wolf was also present in the prairie, and was probably the main threat to the bison. Although the wolf was a large, strong, and smart predator, it needed the pack to chase and wear down an adult in order to kill it. Typically, they would feed on the old, young, sick, or dead animals. Rarely could they bring down a healthy adult bison. With the arrival of the settlers, however, it too was hunted out of its prairie existence and is now extinct in Kansas. The last wolf in Kansas was killed in 1905.

listen to the howls of the wolf on the Wildlife Sounds CD

wolf

Another large predator that once ranged throughout Kansas was the mountain lion. The greatest numbers of them were probably located in southern Kansas where they found more suitable habitat like streams, hills and grasslands. Today, there are still occasional sightings of mountain lions in Kansas. They prey mostly on deer, but also eat rabbits, squirrels, and rodents.

Fig. A-3
mountain lion

Although these animals are the most well-known animals to have gone extinct in Kansas, there are many more today that are listed as endangered or extinct.

refer to "**A Pocket Guide to Kansas Threatened and Endangered Species**" *for a more complete listing.*

"Endangered" means that animals are dying faster than they are reproducing. There are very few left and their chances of survival are slim. Once a species is "extinct", there are none left. A "local extinction" means that a species is gone from one area, such as the extinctions in Kansas. For example, while there are no longer any grizzly bears in Kansas, there are still grizzlies in other parts of the United States.

There are many reasons why a species may go extinct. In the early development of the United States, during the 18th and 19th centuries, hunting was unregulated and was the main reason for the extinction and near-extinction of certain species. Today the main force driving species to the brink of extinction is the loss of habitat. Every day, around the world, wildlife habitat is being lost due to logging and development to support the growing human population.

ACTIVITY #2

Discuss the reasons for the extinction and/or removal of wildlife in Kansas.

Do you know of any animals outside of Kansas that are in danger of becoming extinct today?

to learn more about endangered species in North America, go to www.kidsplanet.org

Lesson B: Nature Observation

Objectives:

- Students will be introduced to the basic skills involved in nature observation.

- Students will learn to use all of their senses to enhance their awareness of their surroundings.

Materials:
___ book - "The Raft"
___ observation trail bag
___ book- "Spot the Differences"

Curriculum Standards:

Life Science
B1 - The student will develop knowledge of organisms in their environment.

Physical Science
B1 - The student will develop skills to describe objects.
B3 - The student will recognize and demonstrate what makes sounds.

Earth and Space Science
B1 - The student will develop an understanding of the properties of earth materials.

Science in Personal and Environmental Perspectives
B2 - The student will demonstrate an awareness of changes in the environment.

ACTIVITY #3

Read the book The Raft to the class to help open their minds to the wonderful world outside.

To learn more about watching wildlife in Kansas, go to www.naturalkansas.org

Nature is everywhere. You don't need to go to the Rocky Mountains, the Grand Canyon, or the Ozarks to find nature. Sure, you can find it in the more common places like parks, preserves, and the countryside. But you can also find it in towns and cities and around your homes and schools. It's not the size of the wilderness that's important. Rather, it is the quality of the experience that connects you with nature. You could spend a lifetime just exploring your own backyard. Wilderness exists in real life and also in your imagination. So, don't let the lack of parks and open space in your area keep you from experiencing the wonderful world of nature. Get out there and explore!

Nature's wildlife, in all its different forms, are in a constant struggle for survival. So they are always on the lookout for other creatures that want to eat them. This means that any movement or noise is a warning of danger, and so they will either try to hide or run away. But with care and patience, it's not that hard to see wildlife.

Here are a few tips for watching wildlife:

- Dress in earth colors or camouflage clothing. Some animals can distinguish shapes and tell they are not a natural part of their surrounding. So try to blend in.

- Don't wear perfume or use heavily-scented soaps. Native Americans would use plants to disguise their human scent.

- Find a spot that might offer a glimpse of wildlife without them seeing you.

- Once you're at the spot, settle down and be prepared to wait awhile. Even if animals are disturbed by your intrusion, they will return to normal after a period of time. *(continued)*

- Most importantly...**be still and remain quiet**. Avoid any talking, coughing, or shuffling of feet. Most animals can hear far better than we can!

If wildlife observation were a mathematical equation, it might look like this:

noise + movement = 0 wildlife

*Use the puzzles in the book, "**Spot the Differences-Animals**" to help reinforce the idea of observation skills.*

So first, let's look at some very basic observation skills. Once you've entered a natural area, stop for a few minutes, remaining still and quiet. Any wildlife present saw you long before you saw them and they "froze" or took cover when you approached, and now they are watching **you**. So without moving your head, let your eyes wander through your viewshed. Besides looking for flying birds, look for silhouettes, especially shapes that look out of place. Tree branches are excellent places to start. The more time you spend outdoors observing, the better you will become at noticing "out of place" objects. You'll instantly recognize branches that have an odd shape, and colors that just don't look right in the "picture".

If you're hiking along, use what's called "splatter vision". This is where you don't really focus on anything in particular, but instead you use your entire field of vision to look for movement. This really opens up your field of view to almost 180 degrees, or as far as your peripheral vision extends to the sides.

ACTIVITY #4

This exercise will illustrate peripheral vision to the students. It used to be a common test given by optometrists during eye exams. To begin with, have them pair up. Student #1 will face forward and look straight ahead, without focusing. His partner, student #2, will stand behind and slightly to the side of #1. Student #2 will hold a pencil at the eyelevel of #1 and slowly move the pencil forward into #1's field of vision. When #1 sees the pencil come into his view, he should raise his hand. Repeat for the other side. This will give each student a good idea of his/her peripheral vision, and just how much they can really see when not focusing on any one particular object.

This next activity will let the students see just how much or how little they are noticing when they are in natural surroundings.

ACTIVITY #5

Let's test the students' powers of observation. Teacher will set up an observation trail outside, around 25-30 steps long. Don't let the students see you making it. This trail should be in an area where you have a variety of shrubs and trees. You can use an existing trail or else string a rope along the ground to mark a trail. Make sure it is free of litter, since you will be placing your own objects along the way. Using the **observation trail box**, space the fifteen objects out along the trail. You don't want to hide them totally, but don't place them in plain sight either. Place these objects in bushes, in the grass, on a limb, etc. Place them high, low, close, and farther away. Place green on green, brown on brown, thin on thin, etc. The idea is to see how well the students observe and can distinguish objects, some of which may be camouflaged, in their natural surroundings.

Next, have the students, one at a time, slowly walk the trail and count how many of these **non-plant** objects they see. They are not to touch the objects nor point at them. They don't need to write them down, just count. They are not to stop, but are to walk at a slow pace the entire trail. One minute should be a good period of time to walk the trail. While one student is walking, the others are involved in another activity away from the trail so they can't see the walker. Ask them not to tell the other students what they saw. After all the students have walked the trail, go back and walk it as a group, having them point out the objects as they go along. Chances are, nobody will have seen all of them. If you want, record their scores and compare them with another trail walk at the completion of the trunk.

Discuss the importance of camouflage in the animal kingdom, and their ability to blend in with their surroundings in order to escape detection by predators.

ACTIVITY #6

This activity will illustrate the selectivity of our senses. We can listen for only those sounds we want to hear, or open up our ears to the full spectrum of sounds around us... a valuable tool in nature observation.

Take the students to a field large enough for them to spread out. Have them bring a notebook and pencil or pen. At the field, have them spread out a good distance from each other, so that there will be no chance to talk with their friends. They are to sit in total silence with their eyes closed. The object of the exercise is to map sounds that they hear. Holding a piece of notebook paper on their lap, the top of the page is the space in front of them, the bottom of the page is behind them, and the left and right sides represent either side of them. When they hear a sound they think is a natural sound, they place an X on the area of the paper that corresponds with the direction from which the sound came. If the sound they heard was a man-made sound, place an O instead. Remind the students to remain absolutely still and silent during the entire exercise. It's important to keep their eyes closed to get the full effect of this exercise.You can run this exercise as long as you wish, but try for a minimum of five minutes.

When the exercise is completed, have the students share their observations. Did anyone hear sounds in all directions? Which sounds did only a few hear? How many heard only natural sounds? How many heard only man-made sounds?

Many ornithologists and wildlife biologists study the sounds of nature to assist them in collecting data in the field. Even amateur birdwatchers get to know the calls and songs of many birds so they can identify them when they are hidden from view.

LESSON C: Tracking

Objectives:

- Students will learn the basic tracks left by the more common and observable animals.
- Students will learn about different signs to look for when tracking.

Materials:

___ 4 rubber tracks...bison, deer, coyote, bobcat
___ transparencies
___C-1(tracks)
___C-2(Track Match game)
___ 4 rubber scats...coyote, bobcat, rabbit, deer

Curriculum Standards:

Physical Science
B1 - the student will develop skills to describe objects.

Life Science
B1 - The student will develop knowledge of organisms in their environment.

Every animal leaves evidence of its presence. This is called “sign”. Being able to read sign is an important skill in hunting. Indians and early pioneers had to learn to read the signs left by animals in order to survive in the wilderness. “Sign” includes bent blades of grass, gnaw marks on bones and vegetation, feathers, fur, claw marks on trees or the ground, and even scat (poop)! With all of these clues, you can get a bigger picture of an animal’s life. These clues can tell you where it’s been, what it ate, how old the sign is, the sex of an animal, and many, many more bits of information.

Tracking is a large part of nature observation.It’s looking for clues that will tell a story, and perhaps solve a mystery! More than just looking for and identifying animal tracks, it involves the skills gained from many years of experience. But for now, we can look at the more obvious clues....tracks and scat.Tracks, of course, are footprints left by animals of all sizes and shapes. Humans leave footprints, handprints, and even fingerprints. Even the smallest creatures leave tracks. Ants and beetles, snakes and turtles, birds and mice all leave tracks of some sort.

Dirt and mud on trails, stream banks, and shorelines of ponds will provide the best tracks, and they will probably last for some time. Look also for narrow animal trails leading through the grass. If you find a bush or tall grass stem that has been cut off, look closer at the cut. Deer and rabbits will often browse on grasses. Their distinctive chewing styles will tell you which one was munching on it. Deer, having no upper front teeth, will bite and pull, leaving a ragged, torn edge. Rabbits and other rodents will make a clean cut, usually at about a 45 degree angle. Remember too, that deer and rabbits will often stand on their hind legs to reach vegetation.

Let’s look at some of the more obvious tracks that you might see on a daily basis. First, when you find a track in the dirt or mud, one thing you can do is count the number of toes. This information is enough to place it in a particular family, thus eliminating others. Members of the cat family have four toes and members of the dog family also have four but their claws leave marks.

The house cat that gets outside will leave tracks that are easy to find and identify. Notice it has four toes and the heel pad has three lobes. Also notice there no claw marks showing.

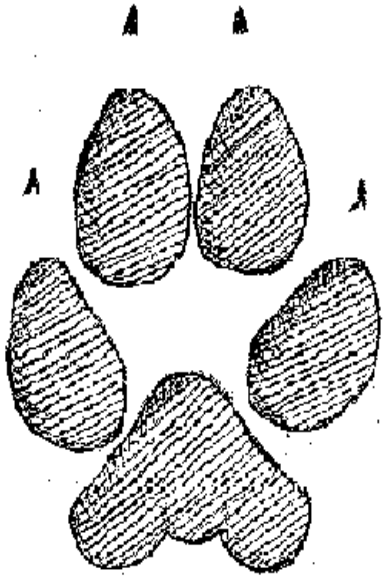
The cat track is about the size of a quarter. Bobcats are at least twice that size. Cat tracks, taken as a whole, are much more round than those of the dog family, which are more oval shaped. Cats claws are also usually retracted when walking, unlike the members of the dog family.

cat, dog, and fox tracks are life-size

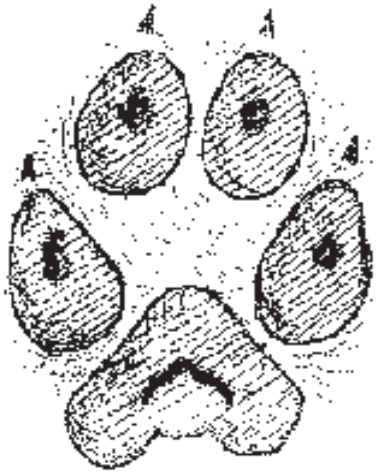
cat track

bobcat track

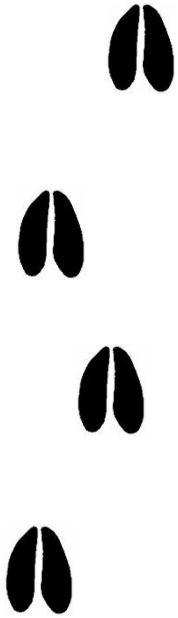
The dog family includes dogs, foxes, coyotes, and wolves. They also have four toes and a heel pad. The dogs claws are usually visible, being four marks just in front of the toes. If you are in the country, you may see tracks that look like dog tracks. There is a good chance they are tracks of a coyote. Tracks of the red fox are very similar to the coyote, but are smaller.



coyote track



redfox track

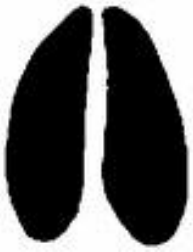


White-tailed deer are plentiful in the preserve and tracks are easy to find, identify, and follow if you know where to go. Most urban parks that border a creek will show signs of deer. Look along the trails or along the creek banks in the mud.

Deer tracks are heart-shaped with a ridge in the middle. The deer family also includes goats, sheep, elk, moose, and deer.

front

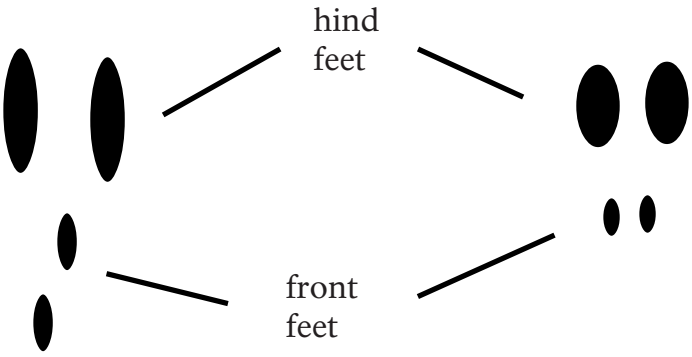
deer track



back

Rabbits are also fairly easy to track, especially in snow. When they are running, their hind feet land in front of their front feet. In dirt their toes don't always show. However, the relative sizes of their large back feet compared to their small front feet are good field marks.

rabbit tracks



squirrel tracks

direction of travel

Some of the most interesting tracks belong to the raccoon and opossum. They both have five toes and their prints are similar to human hand prints. The raccoon uses its front paws to hold its food. The opossum's front paws are similar to the raccoons, but the toes on its front paws are spread apart more than the raccoon. The raccoon tracks can be found near streams and our gardens, where they like to help themselves to our fresh veggies!

front

raccoon tracks

rear

front

opossum tracks

rear

Believe it or not, even insects and reptiles leave tracks. As you might imagine, they can be very small tracks, so sometimes you need to get down on your hands and knees to observe them more closely. You might even want to carry a magnifying glass with you to look at the smallest tracks.

mouse tracks

ACTIVITY #7

Look at the track pictures on page 26, (*also on* **transparency**, *only without the answers*) and try to guess which animal they belong to. Show the rubber tracks included in the trunk.

Try the "**Track Match**" quiz also, on page 27. The answer key is on page 61.

ACTIVITY #8

An interesting and rewarding activity that can be done every day is to monitor a tracking site. Ask the students to set up their own tracking site at home. They are very simple to make and don't really require any materials. To set up a tracking site outdoors, first determine where your dog or cat (if they go outdoors) travels everyday. Somewhere along that route, prepare some bare dirt that will capture its tracks when it walks over the dirt. To prepare the dirt, simply smooth it out and make it level. Don't pack it down; you want the dirt loose. You can also wet down the dirt to see its tracks in mud, and also use snow in the winter. Besides observing your own pets, you might get wild animals that use the route as well. Those students that don't have outdoor pets can still set up a tracking site, but will be capturing the tracks of wild animals (most likely opossum, raccoon, squirrel, mice) or other neighborhood cats and dogs.

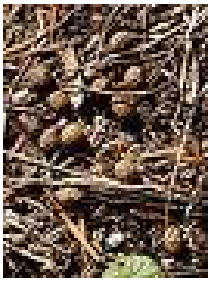
If they do have a pet at home, have them follow it around if it goes outside. See how long they can track it. Look not only for tracks, but also rubbings, hair, scratching, or scat. If they really want a challenge, try to follow it without it seeing them.

compare the rubber scat specimens included in the trunk.

Another clue used in tracking is scat. Scat is another word for poop. Scat can often be confusing since scat of different species can look similar. If you're not sure which animal left the scat, gather other clues from the area, such as tracks, hair, and location. Scat itself will yield clues about what the animal ate, and may help you reach a conclusion as to what animal it was.

Deer and rabbit scat are two of the most common and easiest to identify, since they are in the form of pellets. Deer pellets are dark and cylindrical, about 3/4 inch long, and usually 20-30 pellets are found together. Rabbit pellets are only about 1/4 inch in diameter, and resemble a light-green sawdust material.

deer scat



rabbit scat

Most dogs and cats are fed commercially prepared pet food, and so their scat will be quite different from their wild cousins, who eat more small animals and vegetation. Coyote, fox and bobcat scat might look similar to cat or dog scat, but will most likely contain small bones and hair, berries, feathers, or even grass.

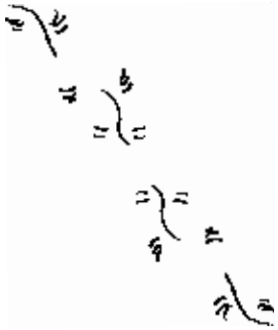
raccoon

deer

coyote

cat

rabbit



lizard

duck

bird

Fig. C-1

Track Match

Draw a line connecting the animal with the track that it makes.

Rabbit

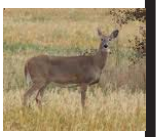
Skunk

Raccoon

Opossum

Bobcat

Coyote



Deer

Human

Bison

Fig. C-2

Lesson D: Today's Wildlife

Objectives:

- Students will get an overview of the animals that are found in the preserve today.

Materials:

___Wildlife Sounds Book/CD
___Tallgrass Wildlife Word Search

Curriculum Standards:

Life Science
B1 - The student will develop knowledge of organisms in their environment.

Science in Personal and Environmental Perspectives
B2 - The student will demonstrate an awareness of changes in the environment.

Listen to the red-tailed hawk and others on the **Wildlife Sounds CD.**

Today, at the Tallgrass Prairie National Preserve, there is still a wide variety of wildlife to be found. The rich diversity of plant life enables many animal species to survive in their native habitats.

Over four hundred species of plants can be found in the preserve, encompassing several different habitats. Riparian, woodland, bottomland prairie, and upland prairie habitats provide conditions necessary for the needs of all the different animals that call it home.

There are one hundred and fifty species of birds that use the preserve during the course of the year. Many of those birds are migratory and only stay for the nesting season during spring and summer. The grasslands provide suitable habitat for many of those birds, some of which fly up from South America in the spring. Having these grassland habitats available are critical to the survival of these migratory birds.

red-tailed hawk

red-bellied woodpecker

greater prairie chickens

meadowlark

Learn more about the prairie birds by ordering our traveling trunk "Birds of the Tallgrass" at www.nps.gov/tapr

In the warmer months, amphibians and reptiles can be found throughout the preserve. Thirty-nine species of lizards, snakes, turtles, frogs, toads, and salamanders populate the rocky areas, creeks, ponds, and grasslands.

collared lizard

Western rat snake

ornate box turtle

great plains skink (juvenile)

Western chorus frog

lightning bug

Insects are very plentiful and are easily observed during the summer months. Grasshoppers, cicadas, crickets, flies, beetles, and lightning bugs are just a few of the many different insects that inhabit the prairie. Thirty-nine species of butterflies have also been recorded, including the popular Monarch.

lubber grasshopper

cicada

monarch butterfly

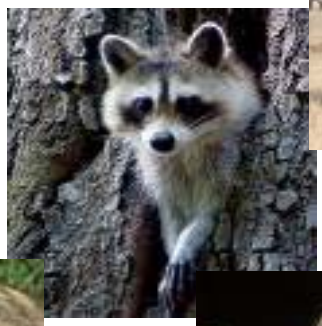
black swallowtail butterfly larva

There are also forty-one species of mammals that live in the preserve. These include small mammals like mice, voles, shrews, rats, gophers, squirrels and bats. Mid-sized mammals include opossums, woodchucks, jackrabbits, skunks, weasels, raccoons, and armadillo. Larger and more easily seen animals include bison, deer, coyote, and fox.

coyote

bison

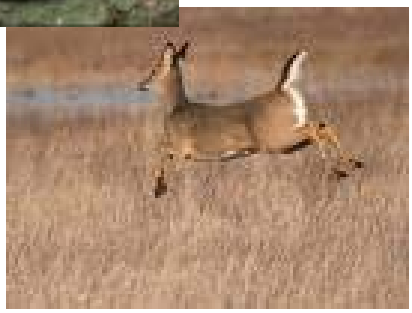
raccoon



badger

wood rat

armadillo



white-tailed deer

ACTIVITY #9

Have the class work on the Tallgrass Wildlife word search puzzle on page 32. Answer key on page 63.

TALLGRASS WILDLIFE

G E M D E A A D Z S W D N T D D C O E A G
A R E N I H S A K E P O T E E R I W L N U
E E A K R R M U S S O P O B E K A C A E B
K D D S E L N H L C L E T D U R E N O M G
N B O N E K O R C B C U F G R L E L D O N
I E W S D N A A A M A O B B T A L L L T I
K L L I D B R T E O X D Y B E S T F E T N
S L A R E J U T A N R O G O E E R A R K T
S I R P L B N L D A H E U E T R U R E O H
N E K C I H C E I R I A R P R E T A E R G
I D S O A O L S R C H G B L A B X E I I I
A W E S T E R N C H O R U S F R O G N W L
L O A G E U O A L B J A C K R A B B I T C
P O E A T S O K D U T R I B A O E C C I O
T D S R I F N E H T R K A A A D T R A A R
A P K B H R R E D T A I L E D H A W K R T
E E M K W I I F L E A E U D B C N C L N N
R C R I C O L L A R E D L I Z A R D I K R
G K O K R Y O E T F H O C U G C O I T C C
M E K A N S T A R L O E C T A B U L D R O
I R E I B B P E O Y N D O H N E N X T B E

REDTAILED HAWK
MEADOWLARK
WESTERN CHORUS FROG
COYOTE
WOODRAT
CICADA
MONARCH BUTTERFLY
TOPEKA SHINER
BOBCAT
REDBELLIED WOODPECKER
RAT SNAKE
ORNATE BOX TURTLE
BISON
BADGER
LIGHTNING BUG
OPOSSUM
BULLFROG
JACKRABBIT
GREATER PRAIRIE CHICKEN
COLLARED LIZARD
GREAT PLAINS SKINK
RACCOON
WHITETAILED DEER
LUBBER
RATTLESNAKE
RED FOX
SKUNK

Fig. D-4

Lesson E: Large Mammals

Objectives:

- Students will learn about some of the larger mammals found in the preserve today.

- Students will learn about the process of reintroducing the bison to the preserve.

Materials:

___bison hair
___book, “Coyotes”
___booklet... “Return of the Bison”
___Pocket Guide to Kansas Mammals

Curriculum Standards:

Life Science

B1 - the student will develop knowledge of organisms in their environment.

B2 - the student will observe and illustrate the life cycles of various organisms.

Physical Science

B3 - the student will recognize and demonstrate what makes sounds.

Learn more about the bison by ordering our "American Bison" traveling trunk at www.nps.gov/tapr

The reintroduction of bison to the Tallgrass Prairie National Preserve in October of 2009 marked the return of one of the original large mammals of the prairie. This small herd was part of a larger group rounded up at Wind Cave National Park in South Dakota. Read the booklet, **Return of the Bison** to see how the bison round-up works.

bison track

to view bison safety videos, go to www.nps.gov/yell and click on wildlife safety video. (Caution...this is a real-life video of a bison/visitor encounter)

The preserve currently has 14 head of bison, with plans to eventually have a herd of 80-100. They are contained in an 1100-acre pasture of tallgrass prairie, and live there the year-round. It is an excellent opportunity for visitors to view the bison in their native habitat. Like all wild animals though, they need a certain amount of distance between themselves and humans to feel comfortable. If we get too close to them, they might run away, ruining our chance to observe them. So, before heading out, visitors are given some tips on how to behave around the bison. This is for their own safety, as well as the safety of the bison.

bison cow and calf

Bison will give birth during April and May. The mother will lick the calf clean, and the calf will learn the scent and sound of its mother. Within just a few minutes after birth, the calf can stand up, and in just a few hours will be ready to run. The other cows in the herd will all help to look after the calf to keep it safe.

nocturnal

Despite the loss of many of the large animal species, many of the mid-size animals are still plentiful.

With the elimination of bear and wolves, the coyote has assumed the role of the largest predator on the Kansas prairie. The coyote, once called the "prairie wolf" is a member of the dog family. It is very adaptable and has succeeded in maintaining its presence in just about every region of the United States. Although you may be lucky enough to see one, you're more likely to hear them howling in the early morning or evening. They howl to communicate with each other. Coyotes have amazing endurance. They can run over 30 miles an hour, and maintain a steady trot for hours. This stamina and adaptability has ensured the success of the coyote in the face of heavy persecution.

coyote

Listen to the coyote and fox on the **Wildlife Sounds CD**

Red foxes are found in fields and wooded areas. This member of the dog family is primarily *nocturnal*, but may be seen during the day. Like coyotes, they have adapted to human encroachment and will often be seen in urban interface and residential areas. Also, because coyotes will prey on foxes, the foxes will often move to town areas to escape. When hunting, they stalk their prey like cats. It eats mostly rodents, but will also kill rabbits and birds as well. Interestingly, just before attacking, they will often jump into the air and pounce down on their prey. Once they catch it, they might play with their prey before eating it.

red fox

fox pouncing on prey under snow

white-tailed deer

White-tailed deer are plentiful in the preserve. Its most distinctive marking is its white tail, which it displays when it bounds off through the woods or meadows. The best time to observe them is at dusk or dawn, when they are out feeding. They may also wander away from the trees and out into the meadow to forage on the grasses. The adult male deer is called a buck, and he will grow a new set of antlers each spring and shed them by late winter. Finding deer antlers in the woods is hard to do though because mice and squirrels will gnaw on the antlers to obtain nutrients. In June, when the female deer, or doe, is about to give birth, she leaves the other deer and goes off alone. Her first birth is usually a single fawn; after that she usually gives birth to twins and occasionally triplets.

deer and two fawns

Listen to the white - tailed deer and the bobcat on the **Wildlife Sounds CD.**

bobcat

Although not easily observed, the bobcat also resides in the preserve. It is very solitary and is one of the most secretive of cats. It is primarily nocturnal and rarely seen. You might, however, be lucky enough to find its tracks. It feeds mostly on rabbits, rodents, or squirrels.

Most members of the cat family bury their scat by scraping dirt over it. House cats that use the litter box are a good illustration of this. Bobcats will cover their scat about half the time. Sometime between March and May, bobcats will give birth to two or three kittens. Like your housecat kittens, they will stay with the mother, who feeds them milk and keeps them warm. After about four weeks, the kittens will venture out of their den and will also start eating meat the mother brings them.

Badgers are members of the weasel family and are also found in the preserve. They have long claws and powerful legs for digging into the ground in search of rodents. They are solitary, very territorial, and have a reputation for being aggressive toward intruders. They dig new holes for their dens just about every night.

badger

ACTIVITY #10

Read **Return of the Bison** and **Coyotes** to the class.

Let the students handle the bison fur from the **Observation Trail box.**

Lesson F: Small Mammals

Objectives:

- Students will learn about some of the smaller mammals found in the preserve today.

Materials:

___Small Mammal Scramble
___Predator / Prey puppet show kit
___Pocket Guide to Kansas Mammals

Curriculum Standards:

Life Science

B1 - the student will develop knowledge of organisms in their environment.

B2 - the students will observe and illustrate the life cycles of various organisms.

Physical Science

B3 - the student will recognize and demonstrate what makes sounds.

Besides the larger and mid-sized animals, there are also many smaller animals that are expected to be living in the preserve. They can often times be easier to observe than the larger animals.

Along the wooded creeks and streams, we might find squirrels, opossums, raccoons, woodrats, and skunks.

Franklin's ground squirrel

striped skunk

omnivorous

Striped skunks belong in the same family as the mink, weasel, and the otter. They are nocturnal, and will usually be on the move at night, but can occassionally be seen during the daytime. They are usually seen shuffling along with their nose to the ground, searching out almost anything to eat. *Omnivorous*, it will eat carrion(dead animals), mice, insects, fruits, and vegetables. It is best known for the strong offensive odor resulting from the act of spraying, which is a defensive strategy. Skunks are easy to observe, since they usually ignore humans, but it doesn't go very far from its den. Beware if it stands on its front feet with its tail over its back...it's getting ready to spray, and it can spray up to 12 feet...accurately!

The raccoon is one of the most popular of animals. It is also one of the most common and successful. Like the coyote, it has adapted well to the encroachment of humans. It often will raid trash cans and pet food dishes that have been left outside. Its natural food includes aquatic life, berries, and nuts.

raccoon

prehinsile

how many teeth do humans have?

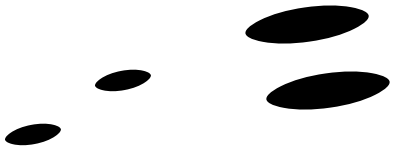
One of the most amazing animals found in the preserve is the opossum. As a marsupial, it is related to kangaroos and koala bears. It is the only mammal in Kansas with a pouch for carrying its young. The young live in the mother's pouch during their two-month development.Its 50 teeth are also the most for any mammal in Kansas. Their *prehensile* tails are used to grab branches while climbing or holding onto nesting material like leaves or grass. When threatened, the oppossum may go into shock and with eyes closed remain motionless for some time, "playing possum". It will eventually come out of it and continue on its way.

opossum

In the grasslands we'll find the jackrabbits, cottontail rabbits, prairie pocket gopher, voles, mice, moles, and shrews.

black-tailed jackrabbit

The black-tailed jackrabbit can occasionally be seen in the preserve. You have to be quick to see them, since they can run up to 40 miles per hour and can leap 10 feet between steps. They really prefer the native prairie and so the loss of habitat has caused the greatest decline in jackrabbits.



The eastern woodrat can grow to be 12 inches long. This "packrat" earned that name because of the many odd items it takes to its nest. If you see a large mound of twigs in the woodland, it is probably the nest of the woodrat. It has many different rooms built into it for different reasons. One room is lined with shredded bark and soft material used for shelter and raising young. Other rooms might be used for food storage, waste deposits, or for shelter during extremely cold temperatures.

eastern woodrat

woodrat nests

ACTIVITY #11

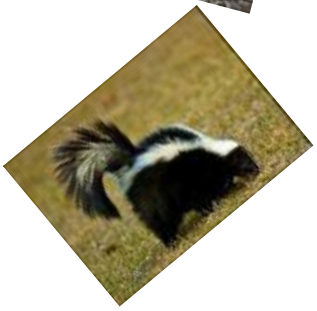
Have some of the students perform the **Predator-Prey** or FIRE! puppet shows for the class, using the **puppets** and the appropriate **backdrop pictures** provided.

ACTIVITY #12

Have the students try the Small Mammal Scramble activity on page 43. Answer key on page 62.

Small Mammal Scramble

See if you can unscramble the letters to find some of the smaller mammals that live in the tallgrass prairie. Then draw a line to the picture of the animal you've just unscrambled.



RPAEIRI LVEO

TOKECP GPHREO

LCIOATNOTT TBIRAB

DOWO TAR

DRAGEB

SLERIRUQ

DSETRPI NUSKK

NOARCOC

MOPUSOS

REDE EOMUS

TUSRAMK

CTBAOB

Fig. F-1

Lesson G: Reptiles/ Amphibians

Objectives:

- Students will learn about the more common reptiles and amphibians found in Kansas.

- Students will learn the differences between reptiles and amphibians.

Materials:

___Pocket Guide to Kansas Snakes
___book "Everything Reptile"
___Book/DVD Eyewitness Amphibians

Curriculum Standards:

Life Science

B1 - the student will develop knowledge of organisms in their environment.

B2 - the student will recognize and illustrate the life cycles of various organisms.

Physical Science

B3 -the student will recognize and demonstrate what makes sounds.

The tallgrass prairie is home to several dozen species of reptiles and amphibians. Reptiles and amphibians need a variety of cover for shelter and the preserve is rich in natural cover. Lots of flat limestone rocks, some wetlands, and riparian areas all provide suitable cover for snakes, lizards, turtles, frogs and toads.

Can you think of a reptile that does not have claws? (...snakes!)

Amphibians and reptiles differ in many ways. Amphibians depend on moisture for their existence. They have moist skin, and easily lose that body moisture if they are away from water for very long. Reptiles are usually covered by scales, and as they grow larger, they shed their skin. If you're lucky, you might be able to see a snakeskin as you hike around the preserve. Amphibians do not have claws on their feet, whereas most reptiles do.

Reptiles are hatched or born as miniature versions of the adults, just like humans are. Turtles, lizards, and most snakes lay their eggs underground, and the warmth of the sun in the spring controls the incubation process. A few snakes, like rattlesnakes and garter snakes, keep the eggs inside their bodies and give birth to live babies.

snake eggs

Snakes have a bad reputation, mostly due to a few species, such as the rattlesnakes. But snakes do provide a lot of valuable benefits to farmers as well as everyone else. They eat a lot of rodents which would otherwise consume a significant portion of their crops. Those crops feed us and provide money for the farmer and his family.

Massasauga rattlesnake

Out of 36 species of rattlesnakes in the United States, only one kind of rattlesnake is found in the preserve...the Massasauga rattlesnake. They are likely to be found in any of the habitats in the preserve, so keep a sharp eye out wherever you go. Shy and seldom seen, it is a snake you don't want to get too close to. Even though they are venomous, not all bites contain the venom. It's also important to remember that very few people die each year from rattlesnake bites.

Snakes are plentiful in the preserve, and the best time to observe them is during the spring and early summer. They are more active during that time after a winter's *dormancy*, during which time their body temperature lowers enough to make them inactive. As the days grow warmer in the spring, so do the snakes, and they eventually venture out in search of food. When the summer days get too hot, many of them become nocturnal and lay in a cool spot during the hottest part of the day.

Listen to the sound of the rattlesnake on the **Wildlife SoundsCD.**

dormancy

One of the most commonly seen snakes in the spring is the Eastern Racer. It is a harmless snake frequently found in open grassland and pasture during the summer. Usually a dark green in color, with a cream or yellow-colored belly, they are often seen in and around the buildings of the preserve, hunting for insects, frogs, lizards, birds, and small mammals.

eastern racer

The Western Rat Snake is another harmless snake commonly seen around the buildings. They prefer forested areas and are frequently seen climbing trees in search of food. Don't be surprised if you spot one of these large, jet-black snakes climbing the outside of the historic house, looking for a meal.

western rat snake

cultivated

The largest snake in Kansas, and one that's also found in the preserve, is the Gopher Snake, also called a Bullsnake. It can grow up to nine feet long, and weigh up to eight pounds. It prefers open grasslands and *cultivated* fields where it can find plenty of rodents.

gopher snake

ACTIVITY #13

Fear of snakes is common among people. Discuss some snake experiences the students have had.

Share the book, "**Everything Reptile**".

Based on their new knowledge of snakes, how do they feel now about snakes?

When walking along the limestone outcrops in the preserve, keep an eye out for the collared lizard. This common lizard is fairly easy to observe up close. During the spring and early summer, the males' brilliant light-green bodies and orange throats are an attractive sight to see. They are very good hunters, often searching for insects. If they need to reach top speeds to escape a predator, they will get up on their hind legs to run.

collared lizard

docile

Another common lizard is the Texas horned lizard, commonly called the "horny toad." It eats ants, and has very few predators because of its formidable "horns". Although fierce and prehistoric-looking, it is rather *docile* and will attempt to burrow beneath the sand to hide. Because of loss of habitat and non-native ants moving in, they are in danger of their populations decreasing.

"horns" of horned lizard

Texas horned lizard

male

female

Probably the easiest reptile to watch and get close to is the ornate box turtle, which happens to be Kansas' state reptile. Slow-moving, it may travel just a few hundred feet in a day, although it may range over a four to five acre territory. They are up and around during the day, spending their time feeding, resting, or basking in the sun. It is easy to tell the sex of these turtles. The males have red eyes and the female's eyes are yellow.

In the winter, they will use other animals' underground burrows, or else dig their own, digging as deep as eighteen inches. In the spring, when the weather gets warm and damp, they will emerge. They feed mostly on insects, but also like fruit and berries.

Amphibians can be more challenging to find in the preserve. Some of them will most likely be heard before you see them. Amphibians include frogs, toads, and salamanders. They spend a lot of time on land, but they must return to water to reproduce. So the cattle ponds found in the preserve become suitable breeding ponds for the amphibians during the spring and summer. Small pools along the streams also serve as good breeding sites. In the spring, buffalo wallows throughout the preserve also collect rainwater and provide excellent habitat for a variety of plants, insects, and amphibians.

Listen to the Western Chorus Frog on the **Wildlife Sounds CD**

Once the air has warmed, the frogs will gather around standing water and begin chirping, announcing their intentions to begin mating. The female will lay hundreds, or maybe even thousands, of eggs, since most of the young will be eaten by fish, turtles, or wading birds. Laying many eggs will ensure that at least some of the young will survive to become adults.

Western chorus frog

Amphibians eggs are soft and cling together in a substance that resembles soft jello. They must be kept wet or else the eggs would dry up and die. Amphibians also develop in stages, called *metamorphosis*. They start out as soft bunches of eggs floating in still water. Once hatched, they grow into tadpoles (frogs and toads) or larvae (salamanders) which continue to undergo changes until two months later, when they resemble adults.

metamorphosis.

Listen to the Bullfrog on the **Wildlife Sounds CD**

The preserve has five kinds of toads and five kinds of frogs. The bullfrog is probably the most well-known of the frogs. His deep "singing" voice helps to attract a mate. In the preserve, hunting is not allowed. In other parts of Kansas, however, the bullfrog is hunted for its meat, especially the legs.

bullfrog

ACTIVITY #14

Have the students watch **Eyewitness Amphibians**.

Lesson H: Insects

Objectives:

- Students will learn about the more common insects found in Kansas.

Materials:

___Eyewitness Insect DVD/book

Curriculum Standards:

Life Science

B1 - the student will develop knowledge of organisms in their environment.

B2 - the student will observe and illustrate the life cycles of various organisms.

Physical Science

B3 - the student will recognize and demonstrate what makes sounds.

exoskeleton

Insects are the most numerous creatures on earth. They make up more than half of all the species alive today, and about 90 % of all the animals on the planet. Their ability to reproduce quickly, their *exoskeleton*, and their insulated nervous system are some reasons why they are so successful. Ants, flies, beetles, grasshoppers, butterflies, dragonflies, ladybugs, and bees all belong to the insect family.

Bees, butterflies, dung beetles, grasshoppers, deer flies, cicadas, and lightning bugs are some of the more common and observable insects in the preserve.

Thirty-nine different species of butterflies have also been documented in the preserve. They feed by sucking nectar from all of the different wildflowers growing on the prairie. One common butterfly is the Monarch butterfly. It spends the summer in the central United States and Canada.

To learn more about monarchs, go to www.monarch-butterfly.com

Monarch Butterfly

But in the fall, they will fly south to Mexico to spend the winter. They usually come through Kansas in September. The following spring, they will fly north again, arriving in Kansas sometime in June. Along the way, they will mate and lay eggs on the milkweed plants in the preserve. These adults will soon die, but the butterflies that hatch during the summer will return to Mexico in the fall.

infestations

Grasshoppers are very abundant on the prairie. They are among the oldest of insects, dating back 300 million years ago to the time of the dinosaurs. More than 600 species live in North America, and as many as 40 different species of grasshoppers can be found in the preserve. They feed on plant material; everything from grasses and flowers to crops, vegetables, and fruit trees. Grasshoppers have huge appetites and have played major roles in historic *infestations* in the Midwest.

One of the easiest grasshoppers to observe is the Lubber, the largest grasshopper in the preserve. It has very short wings, so it cannot fly. But, its very strong hind legs allow it to jump a distance twenty times its length.

Lubber grasshopper

They are fairly easy to catch and large enough to look at without a magnifying glass. Just be sure not to harm them while observing them.

dung beetles rolling a ball of dung

Dung beetles are fascinating bugs to watch. These black beetles will find the dung (poop) of other animals (often cattle), chew it into small pieces, and then roll it into a ball. Then two beetles will work together to roll the ball to another site, where the two will burrow under the ball and dig out from underneath it until the ball sinks underground. The female then lays her eggs inside the ball, and it provides food and shelter for the larvae during their development. These beetles can occasionally be seen on the roads in the preserve as they go rolling along, intent on moving their dung treasure.

Listen to the cicada on the **Wildlife Sounds CD**

cicada

The cicada is a familiar insect in Kansas. At least we're familiar with the sound it makes in the summer.The loud buzzing in the trees on a warm summer night is a reminder of their presence. When they molt, their exoskeleton is often attached to tree trunks and very easy to pick off and examine.

ACTIVITY #15

Print off copies of the **coloring pages** from the cd and have them color and label them.

ACTIVITY #16

Which insects do you like the best? Taking the best qualities of all the insects, create your own "super" insect. What would you call it? Draw a picture of your creation and color it!

Lesson I: Aquatic Wildlife

Objectives:

-Students will learn about the wildlife found in the streams and ponds in the preserve.

- Students will learn about the importance of clean water to aquatic life. They will conduct water sample tests to determine the quality of local water sources.

Materials:

___Pond and Stream Safari Guidebook

Curriculum Standards:

Life Science

B1- the student will develop knowledge of organisms in their environment.

B2 - the student will observe and illustrate the life cycles of various organisms.

Physical Science

B3 - the student will recognize and demonstrate what makes sounds.

Science in Personal and Environmental Perspectives.

B2 - the student will demonstrate an awareness of changes in the environment.

Tallgrass Prairie National Preserve contains hundreds of natural springs. Water from these springs runs through natural drainages, providing water for wildlife throughout the watershed. There are also 26 man-made ponds, built by the ranchers to hold water for the cattle. These ponds are filled with water flowing from the springs. The ponds also serve as a water source for wildlife, and are home to many aquatic species. About one-fourth of the springs run year-round, the rest are seasonal and will stop running sometime in the fall or winter.

Over the years, the ranchers stocked the ponds with fish. Some of the streams contain native fish, like the channel catfish, green sunfish, bluegill, spotted bass, largemouth bass, and the Topeka shiner, which is listed on both the Kansas and the federal endangered species list.

bluegill

topeka shiner

channel catfish

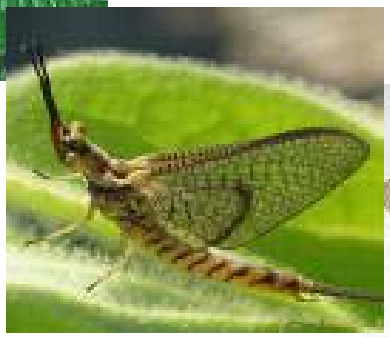
largemouth bass

pristine

Streams are also great places to experience aquatic wildlife. Insect populations vary with the seasons and water quality. These insects are called Benthic Macroinvertebrates. Benthic means “bottom-dwelling”or “under”. Macro means “small, but visible to the naked eye.” Invertebrate means “an animal without a backbone.” While some macroinvertebrates can tolerate a lot of pollution, others can only live in *pristine*, or very clean, water.

They are listed in groups, or “classes” according to their pollution tolerance levels. Class I species prefer the cleanest water, and includes the Mayfly, Dobsonfly (also called hellgramite), and Caddisfly.

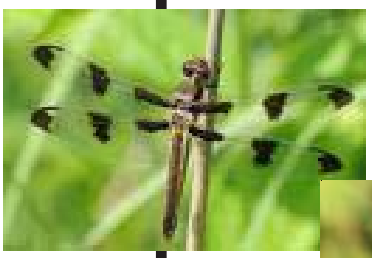
caddisfly



mayfly

dobsonfly

Class 2 invertebrates can tolerate a little bit of pollution and include the Crayfish, Damselfly, Dragonfly, and Mussels.



dragonfly

damselfly

crayfish

Class 3 invertebrates can tolerate the most pollution and can be found in any quality of water. This class includes leeches and snails. These species are typically found in farm ponds and run-off areas like ditches and low-lying areas.

leech

snail

ACTIVITY #17

Using the **Pond and Stream Safari guidebook**, take a trip to a local wetland, after obtaining permission, and try to find aquatic invertebrates. Have the class divide up into teams and fill out the worksheets for the species they find.

Remind the students to return the specimens unharmed to the wetland/stream when they leave.

ACTIVITY #18

Play **Animal Trackers** card game. For this game you will need the **Animal Trackers Game Cards** , **Wildlife Sounds CD**, and **rubber scats**.

This game will allow the student to use all of the knowledge learned from the previous activities. The objective of the game is to identify animals from the questions, pictures, tracks, scats, and also sounds of the animals covered in the trunk. Each winning answer is awarded that clue card.The team with the most cards at the end of the game is the winner. Teacher will collect all of the cards at the completion of the game.

To set up the game:

1) Divide the class into teams of 3-4 students each and let them choose a team name from one of the animals in this trunk. They should also choose a spokesperson for the group.

During the game, when trying to identify the animal, they should work as a team to come up with one answer. To keep the game moving, it's recommended that the teacher set a time limit of 25-30 seconds for teams to decide on their answer.

2) Shuffle the cards and place face down on the table. The clues are on the bottom and will be shown or read to the students. The answers are on the top side of the card for the teacher to see and should be far enough away so the students can't see the answers. Only teacher should handle the cards.

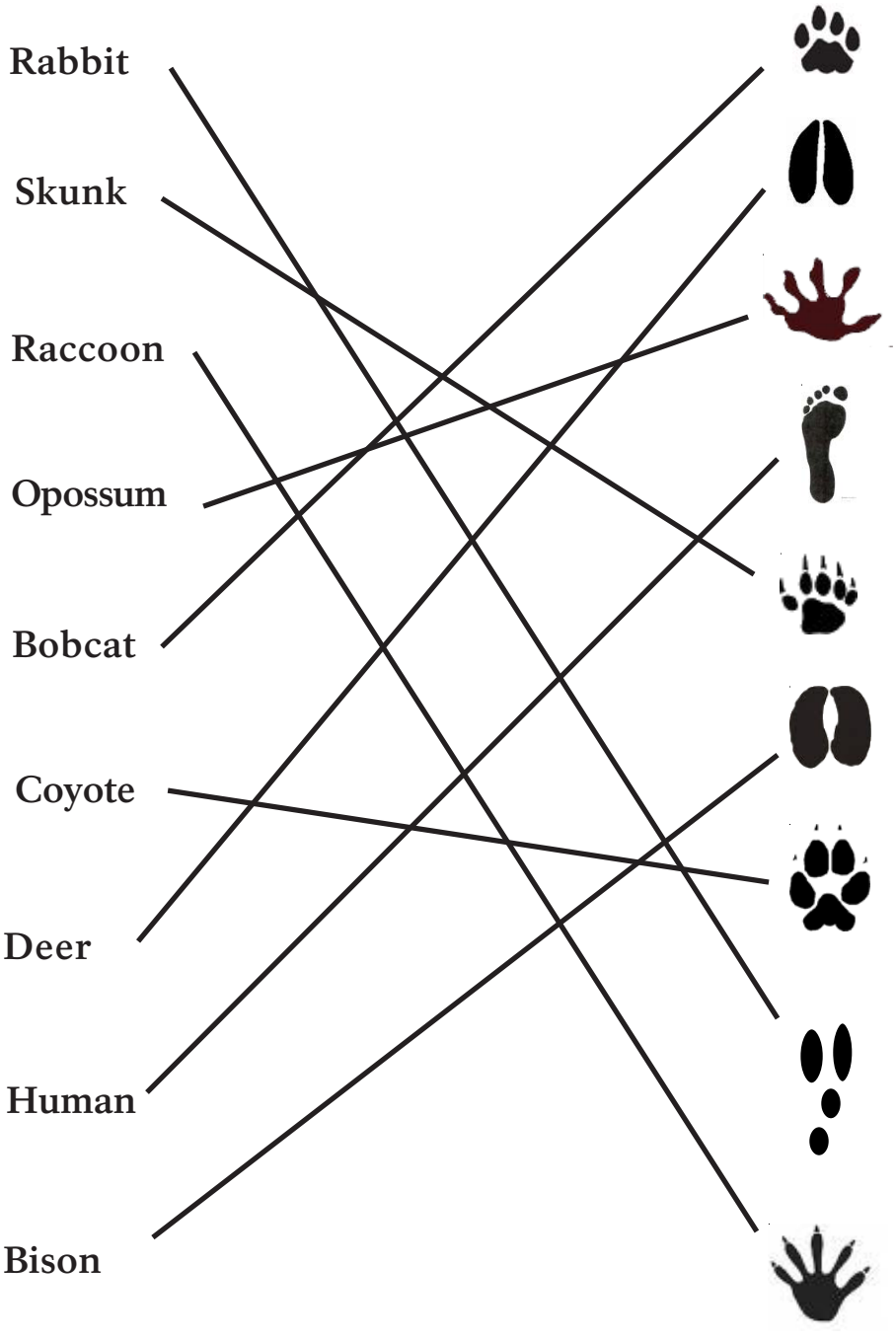
To begin play:

Teacher picks up the top card and gives that clue to the first team, which then tries to identify the animal. If answered correctly, they are awarded that card, and play moves to the next team for the next card. If answered incorrectly, the next team gets a chance to answer, and so on. If all teams answer incorrectly, the answer is given and that card is placed at the bottom of the deck and may come around again later in the game.

note: *when playing the CD tracks for clues, be sure to lower the volume at the beginning of the track, since the name of the animal is mentioned at the start.*

Track Match (answer key)

Draw a line connecting the animal with the track that it makes.



Small Mammal Scramble

(answer key)

RPAEIRI LVEO prairie vole

TOKECP GPHREO pocket gopher

LCIOATNOTT TBIRAB cottontail rabbit

DOWO TAR wood rat

DRAGEB badger

SLERIRUQ squirrel

DSETRPI NUSKK striped skunk

NOARCOC raccoon

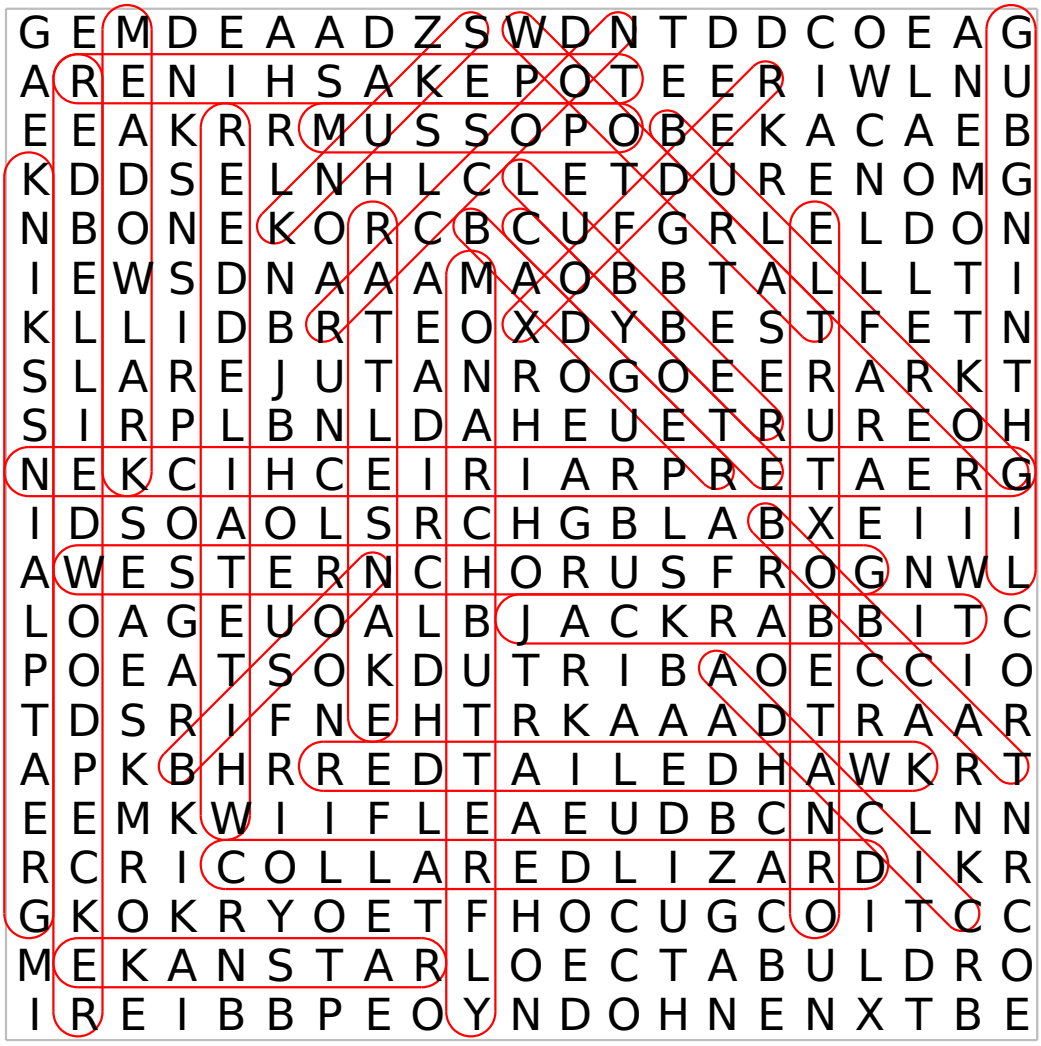
MOPUSOS opossum

REDE EOMUS deer mouse

TUSRAMK muskrat

CTBAOB bobcat

TALLGRASS WILDLIFE



REDTAILED HAWK
MEADOWLARK
WESTERN CHORUS FROG
COYOTE
WOODRAT
CICADA
MONARCH BUTTERFLY
TOPEKA SHINER
BOBCAT
REDBELLIED WOODPECKER
RAT SNAKE
ORNATE BOX TURTLE
BISON
BADGER
LIGHTNING BUG
OPOSSUM
BULLFROG
JACKRABBIT
GREATER PRAIRIE CHICKEN
COLLARED LIZARD
GREAT PLAINS SKINK
RACCOON
WHITETAILED DEER
LUBBER
RATTLESNAKE
RED FOX
SKUNK

Post-Trunk Activities

1. Conduct the trail walk activity #5 on page 17 again to see if their observation skills have improved. This time, in addition to the objects you place along the trail, add a rubber scat and use a rubber track model to make a track in the dirt. Deer tracks are recommended since they are more easily seen than dog or cat tracks. Compare these scores to the previous trail walk.

2. Plan a class field trip to a local park where students can gain more experience looking for sign, and/or observing wildlife.

3. Contact a local park or natural area and invite a speaker to visit your class and talk about wildlife observation opportunities in your area.

4. Contact your local or state park aquatic education program to see if there is an “Adopt-a-Stream” program in your area.

References and Additional Resources

A Pocket Guide to Common Kansas Mammals, Great Plains Nature Center

The Bison and the Great Plains, David Taylor, Crabtree Publishing Co., 1990

Bison, Scott Wrobel, Smart Apple Media, 1980

Watching Kansas Wildlife, A Guide to 101 Sites, Bob Gress and George Potts, University Press of Kansas, 1993

Tom Brown's Field Guide to Nature Observation and Tracking, Tom Brown Jr., Berkley Publishing Group, 1983

Animal Tracks and Signs of North America, Richard P. Smith, Stackpole Books, 1982

Guide to Animal Tracking and Behavior, Donald and Lillian Stokes, Little, Brown, and Company, 1986

Sharing the Joy of Nature, Joseph Cornell, Dawn Publications, 1989

Related websites:

www.naturalkansas.org
www.nps.gov/yell
www.kidsplanet.org
www.monarch-butterfly.com

INVENTORY

Please take the time to check all of the items in the trunk before and after use. If anything is missing or damaged, please contact us immediately.

Tallgrass Prairie
National Preserve
Route 1, Box 14, Hwy 177
Strong City, KS 66869
(620) 273-8494
tapr_interpretation@nps.gov

___Activity notebook, including cd w/ pdf files
___A Guide to Wildlife Sounds w/ audio cd
___DVD...Eyewitness Amphibians
___Book...Eyewitness Amphibians
___DVD...Eyewitness Insect
___Book... Eyewitness Insect
___Book... "Coyotes"
___Book... "Everything Reptile"
___Book... "The Raft"
___Book... "Spot the Differences"
___Pocket Guide to Kansas Mammals (3)
___Pocket Guide to Kansas Snakes (3)
___Pocket Guide to Kansas Threatened and Endangered Species (3)
___Pocket Guide to Kansas Raptors (3)

___Booklet... "Return of the Bison"
___Activity Booklet...American Bison
___Pond and Stream Safari
___Rubber tracks (4)
___Rubber scat (4)
___What Am I ? game signs (23)
___Animal Trackers game cards (55)
___Animal coloring pictures
___Predator/Prey Puppet show kit
___Hand puppets:
- ___Snake
- ___Rabbit
- ___Coyote
- ___Owl
- ___Bison

Transparencies:
___Fig. A-1(bison)
___Fig. A-2(antelope)
___Fig. A-3(mt. lion)
___Page 22(rabbit/squirrel tracks)
___Page 23(raccoon/opossum tracks)
___Fig. C-1(tracks)
___Fig. C-2(Track Match)
___Page 29(birds)
___Page 30(rept/amph/insect)
___Page 31(mammals)
___Fig. D-4(Word Search)
___Fig. F-1(Small Mammal Scramble)
___Page 58(stream inverts)

___Observation trail box:
- ___feather
- ___mussel shell
- ___nest
- ___snake
- ___scat
- ___mouse
- ___butterfly
- ___bone
- ___twine
- ___marble
- ___skull
- ___bison hair
- ___dragonfly
- ___turtle shell
- ___horseshoe